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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,710	03/18/2004	Jill V. Watson	2000.142	7829
29494	7590	06/01/2007	EXAMINER	
HAMMER & HANF, PC 3125 SPRINGBANK LANE SUITE G CHARLOTTE, NC 28226			MERCADO, JULIAN A	
		ART UNIT	PAPER NUMBER	
		1745		
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		06/01/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/803,710	WATSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Julian Mercado	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-32 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2004-06-10</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

**DETAILED ACTION**

***Information Disclosure Statement***

The Information Disclosure Statement (IDS) filed on June 10, 2004 has been considered by the examiner.

***Claim Objections***

Claims 9, 10, 13, 14, 25, 26, 29 and 30 are objected to because of the following informalities:

1. In claims 9, 10, 13, 14, 25, 26, 29 and 30, it is suggested to change “°c” to --°C--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "freshly coated" in claims 12 and 28 is a relative term which renders the claim indefinite. The term "freshly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taskier (U.S. Pat. 4,298,666) in view of Buntin (U.S. Pat. 3,811,957).

Regarding claims 1 and 17, Taskier teaches a battery separator for a zinc battery comprising a first and second electrode and a separator disposed therebetween; the separator itself comprises a microporous membrane. See the Abstract and col. 17 lines 42-49. A coating comprising cellulose acetate polymer, *inter alia*, and a surfactant such as ethoxylated 2-ethylhexyl phosphate is applied thereon. See col. 17 line 50 et seq., col. 21 lines 36-67 and col. 23 lines 1-34.

For claims 1-4, 7, 8, 17-20, 23 and 24 the prior does not explicitly teach the relative weight percentage amounts of the cellulose acetate polymer and the surfactant or the surface density of the coating. However, it is asserted that optimization of weight percentages or surface density within the prior art conditions through routine experimentation is within the purview of the skilled artisan absent of a showing of evidence or unexpected results indicating that these parameters are critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

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For claims 5, 9, 10 and 21 and as to the cellulose acetate having about 2.5 acetyl groups per glucose and the separator having an electrical resistance of less than or equal to 10 milliohms-inch<sup>2</sup> or in the range of 7.7 to 10 milliohms-inch<sup>2</sup>, it would naturally flow for the cellulose acetate and separator disclosed by Taskier to have, inherently, the same number of acetyl groups per glucose and electrical resistance as claimed, absent of a showing by applicant that the claimed invention distinguishes over the reference. *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) and *In re Spada*, 15 USPQ 2d 1655 (Fed. Cir. 1990)

For claims 6, 11, 22 and 27 and as to the coating being on both surfaces of said membrane and the separator being adapted for wetting by an aqueous electrolyte, Taskier discloses that the surfactant allows aqueous electrolyte solutions to penetrate the entire pore structure. See col. 16 lines 30-36.

For claims 9, 10, 25 and 26 and as to the separator being stored for a period not less than 22 days and not exceeding 256 days at 70 °C, this limitation while considered by the examiner has not been given patentable weight as it is considered drawn to an intended use limitation which fails to give weight and scope to the claimed separator.

For claims 12 and 28, and to the extent that this claim is understood for the reasons set forth under 35 U.S.C. 112, second paragraph (discussion above), as to the separator being freshly coated and being wetted within 8 seconds or less, this limitation while considered by the examiner has not been given patentable weight as it is considered drawn to a process-of-making limitation which fails to give weight and scope to the claimed separator.

For claims 13, 14, 29 and 30 and as to the separator being stored for a period not less than 22 days and not exceeding 256 days at 70 °C and said separator being wetted within 1 second or

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less or being wetted instantaneously, this limitation while considered by the examiner has not been given patentable weight as it is considered drawn to a process-of-using limitation which fails to give weight and patentable scope to the claimed separator.

For claims 15 and 31, the membrane has a thickness of less than 1.5 mils insofar as the preferred thickness of 0.7 to 2 mils comfortably overlaps therewith. See Taskier in col. 15 lines 56-61.

For claims 16 and 32, the separator has an effective average pore size of less than 0.045 micron, insofar as 200 Å equals 0.020 microns. See Taskier in col. 26 line 28-32.

Taskier does not explicitly teach an additional surfactant consisting of organic ethers. However, Buntin teaches a surfactant such as nonylphenoxy poly(ethlyeneoxy)ethanol for wetting out polypropylene structures of a battery separator. See Buntin in col. 12 lines 1-10. In Taskier, it is noted that the cellulose acetate polymer is employed *in admixture to* polyolefin polymers such as polypropylene. See Taskier in col. 8 line 67 et seq. and col. 17 lines 63-66. The skilled artisan would find obvious to employ an additional surfactant such as nonylphenoxy poly(ethlyeneoxy)ethanol in Taskier's invention. The motivation for such a modification is to effectively wet the battery, especially since “[o]ne of the characteristics of polypropylene is that it is not easily wettable by aqueous materials....” See Buntin in col. 11 line 59 et seq.

Claims 1-32 are rejected under 35 U.S.C. 103(a) as being obvious over Wensley (U.S. Pat. 6,479,190 B1) in view of Taskier (U.S. Pat. 4,298,666).

Regarding claims 1-4 and 17-20, Wensley teaches a battery separator for a battery having a zinc electrode and microporous membrane and a coating comprising 16-38% by weight

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cellulose acetate polymer and an organic ether surfactant such as nonylphenoxy poly (ethlyeneoxy) ethanol at 62-84% by weight. See the Abstract and the document throughout.

For claims 5, 9, 10 and 21, the cellulose acetate has about 2.5 acetyl groups per glucose and the separator has an electrical resistance of less than or equal to 30 milliohms-inch<sup>2</sup>. See col. 3 line 18 et seq.

For claims 6, 11, 22 and 27, the coating is applied to at least one surface of the membrane; the separator is adapted for wetting by an aqueous electrolyte. See col. 2 line 58 et seq.

For claims 7, 8, 23 and 24, the surface densities for the coating range from 0.02 mg/cm<sup>2</sup> to 0.30 mg/cm<sup>2</sup> and preferably 0.05 to 0.15 mg/cm<sup>2</sup>. See col. 3 lines 47-50.

For claims 9, 10, 25 and 26 and as to the separator being stored for a period not less than 22 days and not exceeding 256 days at 70 °C, this limitation while considered by the examiner has not been given patentable weight as it is considered drawn to an intended use limitation which fails to give weight and scope to the claimed separator.

For claims 12 and 28, and to the extent that this claim is understood for the reasons set forth under 35 U.S.C. 112, second paragraph (discussion above), as to the separator being freshly coated and being wetted within 8 seconds or less, this limitation while considered by the examiner has not been given patentable weight as it is considered drawn to a process-of-making limitation which fails to give weight and scope to the claimed separator.

For claims 13, 14, 29 and 30 and as to the separator being stored for a period not less than 22 days and not exceeding 256 days at 70 °C and said separator being wetted within 1 second or less or being wetted instantaneously, this limitation while considered by the examiner has not

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been given patentable weight as it is considered drawn to a process-of-using limitation which fails to give weight and patentable scope to the claimed separator.

For claims 15 and 31, the membrane has a thickness of less than 1.5 mils insofar as the preferred thickness of 1 mil is specifically disclosed. See col. 2 lines 42-51.

For claims 16 and 32, the separator has an effective average pore size of less than 0.045 micron. See col. 2 lines 51-57.

Wensley does not explicitly teach an additional surfactant such as ethoxylated 2-ethylhexyl phosphate. However, for the detailed reasons and citations as set forth above, Taskier teaches this surfactant for a microporous battery separator application. The skilled artisan would find obvious to employ an additional surfactant such as ethoxylated 2-ethylhexyl phosphate. The motivation for such a modification is to further enhance the substrate wettability. See Taskier in col. 22 line 12 et seq. and col. 23 line 25 et seq.

### ***Double Patenting***

Claims 1-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,479,190 B1 (hereinafter the '190 Patent) in view of Taskier (U.S. Pat. 4,298,666). The '190 Patent similarly recites a battery separator comprising a microporous membrane, a coating on at least one surface of said membrane comprising cellulose acetate and a surfactant consisting of organic ethers. The '190 Patent does not recite a second surfactant of an oxirane polymer with 2-ethylhexyl dihydrogen phosphate. However, the skilled artisan would find obvious to employ a second surfactant of an

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oxirane polymer with 2-ethylhexyl dihydrogen phosphate for the reasons and motivations provided for by Taskier, discussed above and incorporated herein by reference.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. A Material Safety Data Sheet for 2-ethylhexyl phosphate is cited for its listing of its synonyms and tradenames.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian Mercado



PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER